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ABSTRACT

In response to a frequently articulated call for "ecological" validity from instructional communication investigations, this paper reports on methodological issues which evolved during the development and application of a coding scheme for content analyzing teacher compliance-gaining messages. Starting with a consideration of the standard research design for producing the "to-be-coded" teacher compliance-gaining messages, the paper examines: (1) the unitizing of raw message data which requires the imposition of some uniform structure onto verbal passages; and (2) the evolutionary refinement of categories which represent a valid, yet feasible coding scheme. Also relevant to this examination was a consideration of the application of criteria to the coder/rater selection process. The paper presents the heuristic implications of this examination as a set of guidelines which investigators should consider when attempting to develop concrete schemes, while simultaneously dealing with the harsh realities of the actual project. In this way, instructional researchers are provided a roadmap for future explorations and a typology of the pitfalls which may lie ahead. Seventeen references are attached. (Author/SR)

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DEVELOPING CODING SYSTEMS FOR EXPLICATING TEACHER COMPLIANCE-GAINING MESSAGES

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Running Head: CODING MESSAGES

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ABSTRACT

In response to a frequently articulated call for "ecological" validity from instructional communication investigations, this article reports on methodological issues which evolved during the development and application of a coding scheme for content analyzing teacher compliance-gaining messages. Starting with a consideration of the standard research design for producing the "to-be-coded" teacher compliance-gaining messages, an examination is made of 1) the unitizing of raw message data which requires the imposition of some uniform structure onto verbal passages and 2) the evolutionary refinement of categories which represent a valid, yet feasible coding scheme. Also relevant to this examination was 3) a consideration of the application of criteria to the coder/rater selection process. The heuristic implications of this examination are presented as a set of guidelines which investigators should consider when attempting to develop concrete schemes, while simultaneously dealing with the harsh realities of the actual project. In this way, instructional researchers are provided a roadmap for future explorations and a typology of the pitfalls which may lie ahead.

DEVELOPING CODING SYSTEMS FOR EXPLICATING TEACHER COMPLIANCE-GAINING MESSAGES

Try to attend an instructional communication paper panel today without hearing at least one of the critics call for either observations of teacher behaviors or the plea for researchers to code actual messages following the constructivist approach. These positions are also common among the reviewers of manuscripts submitted to journals publishing instructional research reports. Apparently, the field is fixated on obliterating the check list or self-report approach to measurement. Perhaps with some envy, these same self-report haters are suspicious of the "ease" with which we collect paper and pencil responses from our subjects.

Claiming that "quick" must equal "dirty" and thus, ease of assessment does not yield valid findings, we've been accused of harboring and abetting socially desirable response biases in our compliance-gaining research with teachers and students. Admittedly, we, too, have punctuated the end of our research reports with this asserted "need" for ecological validity. At some point, we thought, we'll have to take the time and actually do what we've asked others to do: Without the assistance of preformulated, validated, reliable check-list type questionnaires, simply provide teachers with blank sheets of paper for them to write down what they would actually do or say.

This article reports on those research issues which evolved from our efforts to develop and apply a coding scheme for content analyzing teacher compliance-gaining messages. It is our

hope that what we have learned about coding and analyzing teacher messages will guide future researchers in their efforts to explicate compliance-gaining or resistance in the classroom.

The best place to begin our discussion is with an overview of the design that produced the to-be-coded teacher messages. It was the same basic design which was employed in a study by Kearney, Plax, Sorensen and Smith (1988). That is, this investigation was designed to assess both preteachers' and experienced teachers' strategy selections when confronted with student misbehaviors. The important difference between the present design and that of the Kearney et al. study was the operational definition of reported strategy use. The former investigation relied on a selectionist approach where teachers were provided with a list of 22 available strategies and asked to indicate their "likelihood of using each one." In the present case, subjects were not given a list of strategies from which to select a response. Instead, preteachers and experienced teachers "constructed" or encoded their reactions. Specifically, subjects were given descriptions of students misbehaving in four different scenarios and then asked to "please write what you think you would SAY to get the particular student to do what you want him/her to do." Directions also indicated to "use the space provided; feel free to write as many different things you think you would say."

Without elaborating too much more on the actual study, the design was shown to be empirically valid and data collection produced a large set of compliance-gaining messages encoded by

preteachers and experienced teachers. Our next task was to convert the qualitative data into some quantitative form in order to interpret the results. At this point, we were still naive to the coding process. All we had left to do was to assign each message obtained to the original 22 categories of Behavior Alteration Techniques (BATs)(Kearney, Plax, Richmond, & McCroskey, 1984). That was over 900 hours of frustration ago. At long last, all the messages are coded and in a quantifiable form; **wish we knew then what we know now.** Should you attempt to conduct similar research, this report should provide you with some helpful guidelines.

Basically, coding involves two critical operations: 1) separating the qualitative material into codeable units, and 2) creating a workable system for categorizing the unitized material (Guetzkow, 1950, p. 57). However,a third operation, often discussed separately in the coding literature, involves the selection and training of coders. Each of these tasks requires the researcher to make a number of decisions. Unfortunately, there exists no easy formula or approach to guide each step of this process. Many of our decisions were reached by trial and error.

Unitizing the Messages

Unitizing the raw data requires the imposition of some uniform structure onto the verbal passages (Guetzkow, 1950; Fox, 1969; Holsti, 1968). In other words, when we examined the messages each teacher wrote, we had to determine when a particular compliance-gaining strategy began and when that same strategy

ended. Simple enough, we thought. We'll just take a sample paragraph and unitize it according to sentences. Each sentence will equal a separate and unique compliance-gaining message suitable for categorizing into the BAT typology (Kearney et al., 1984). Unfortunately, our teachers failed to comply with our original unitizing scheme. That is, more often than not, the teachers imposed more than one distinct strategy within a given sentence or worse, sentences were bereft of any strategy at all. Instead, many teachers felt compelled to write statements across several sentences justifying the strategy they did select ("I don't normally respond this way, but it seems Johnny's got it coming to him in this case"). Moreover, a given message/strategy could have been subject to "multiple coding" (Fox, 1969, p.655) in those instances where teachers restated their message across a number of different sentences. Finally, after a thorough examination of much of the raw data, we determined that the unit for analysis should consist most appropriately, of those phrases, sentences or entire paragraphs that represent separate, discrete attempts to change the student's behavior.

After deciding on our unit of analysis, our next task was to take the verbal material across four different misbehavior scenarios from over 120 prospective and experienced teachers and mark each separate unit. This step was essential for subsequent coding in order to ensure that coders were categorizing a uniform number and kind of messages (Cartwright, 1966; Guetzkow, 1950; Holsti, 1968). Independent from the actual coders of this study,

a message "unitizer" began the tedious task of marking the separate messages for later categorization. Anytime the "unitizer" was unable to separate clearly a given passage, the three subsequent coders of the data collectively determined the individual message units. Moreover, in the event a coder questioned the unit created by the "unitizer," all three coders met to discuss the eventual, mutually agreed upon message segment.

Establishing the Categories

The second operation required the identification of a valid, yet feasible coding scheme. Although we may have been idealistic, we assumed that the BAT typology developed by Kearney et al. (1984) would be sufficient. After all, the categories were represented by messages that teachers themselves had generated. Clearly then, the messages these preteachers and experienced teachers had encoded could be easily lumped into one of the 22 technique types. In a number of "practice" sessions, the three coders attempted to reach some uniform agreement as to the placement of each sample message into the BAT typology. This proved to be an impossible task. No matter how much time we spent discussing, explaining, arguing and reinterpreting each and every BAT, we were unable to approach any reliable judgments. Even though the BAT typology may represent the spectrum of strategies available to teachers, imposing 22 separate categories onto single message units required a sophistication and a capacity to differentiate that was beyond our information processing abilities.

Keeping in mind that "the most logically constructed and theoretically elegant scheme of analysis will not produce objective results if it does not in fact 'fit' the material being analyzed," (Cartwright, 1966, p. 438), we began to modify our original scheme. Reasoning that earlier research had identified and validated the underlying dimensions of prosocial and antisocial BAT types across most of the original 22 categories (Kearney & Plax, 1987; Kearney, Plax, Sorensen, & Smith, 1988; Plax, Kearney, & Downs, 1986), we considered the possibility of coding our messages into two basic categories: Prosocial and antisocial. Opting for this reduced category scheme resulted in several advantages. First, we discovered that these two extremes which underlie the conceptualizations of most compliance-gaining typologies in the literature today (Hunter & Boster, 1978; 1979), were easily understood and interpreted by the coders. Unlike the coding efforts of others (see for instance, Burleson, Wilson, Waltman, Goering, Ely & Whaley, 1986; Cody, McLaughlin, & Jordan, 1980) who eliminated between 27% and 72% of the data from their coding systems, we were able to code almost all of the message units into either prosocial or antisocial categories. Those message strategies that invoked a combination of both prosocial and antisocial types were labeled "Mixed" (e.g., "I bet if you tried, you could really learn a lot and, at the same time, keep me from sitting on you!"). By definition, these messages "are connected by a word or phrase which indicates a reversal of feeling" (Fox, 1969, p. 653).

Second, non-instances of these categories were resolved by the addition of an "other" category. Consequently, a potential sieve coding scheme type was easily converted into an exhaustive system (Guetzkow, 1950). Third, expecting the data captured by this extra category to reflect another, yet uninterpretable "catch-all" of compliance-gaining techniques, we quickly learned that this was not the case. Instead, this additional, fourth category slowly evolved into a meaningful dimension which we labeled, "Information Seeking." Not identifiable as compliance-gaining techniques per se, teachers frequently encoded messages designed to probe students' reasons for their misbehavior ("I would try to find out why Sarah doesn't like school;" "I'll ask Sarah what she likes to do. Maybe she's just bored"). Apparently, teachers who encoded these message types were reluctant or unable to construct compliance-gaining messages without first determining the underlying cause of the misbehavior.

Practicing the classification of teacher messages into this much simplified coding system substantially improved our reliabilities. Moreover, we began to discuss ways the two basic compliance-gaining categories (pro and antisocial) could be further coded into discrete subcategories. For those messages that were classified as either prosocial or antisocial, we discovered that messages could be further classified as either implicit or explicit. Explicit pro or antisocial messages were those where the consequences for changing or not changing the undesirable behavior were clearly stated or alluded to ("You'll

have to stay in at recess"). Implicit pro or antisocial messages failed to spell out consequences for compliance/noncompliance ("This is your second warning!"). Unlike the explicit messages, implicit techniques could result in confused expectations similar to those of "mixed" messages.

Other instances of "multiple coding" (Fox, 1969, p. 655) evolved from the practice sessions over the days and weeks to follow. We began to code message trends that occurred with a given passage. Did preteachers and experienced teachers differ in their initial message constructions from their later constructions? Would we find that teachers respond first with socially desirable messages and later switch to those they might more realistically apply in the classroom? Allowing the data to "speak to us" and forcing ourselves to patiently "listen" over time, yielded an eventual coding system that revealed a wealth of information.

Before the final coding was conducted, however, we found it worthwhile to develop a rule book. Establishing the "ground rules" for those messages that did not readily or obviously fit into a given category (Calkins, Borich, Pascone, Kugle & Marston, 1978) enabled us to achieve even greater uniformity among our ratings (Marston, Kugle, & Zimmerer, 1978). For instance, we decided to code all nonverbal behaviors as implicit; grammatical insertions which added a type of vocalic emphasis to an otherwise neutral word or phrase ("JIM!!") were coded typically as antisocial; simple reminders of the classroom rule ("Don't forget,

Jill. Now it's time for me to talk. As soon as I'm finished, it'll be your turn") were coded as prosocial; all sarcasm was labeled antisocial; and so on.

In operationalizing the rules for these particular message types, we relied on a "latent" or inferential, as opposed to a "manifest" or literal level of analysis (Fox, 1969, p. 647). For instance, sarcasm was identified primarily from the contextual cues embedded within the entire passage. Without such cues, an antisocial message would have been inappropriately labeled as prosocial ("I'd be glad to have you take over my job if you'd like to continue to talk!"). Importantly, messages interpreted from a latent level of analysis could have been classified differently by another group/pair of coders employing the same coding system. Consequently, making explicit the RULE BOOK employed in coding message constructions is essential for replication and interpreting the face validity of the results obtained (Cartwright, 1966, p. 436).

Selecting the Raters

The final operation for quantifying qualitative data requires the careful selection of coders or raters. A very large body of research treats the selection, care and feeding of raters. It is not our purpose here to reiterate all the guidelines. Instead, we'd like to address the issue of coder selections. Most texts suggest that, all things considered, raters should be independent of the research project, and therefore, unaware of the purpose of the study in an effort to reduce potential rater/experimenter bias

(Tucker, Weaver, & Berryman-Fink, 1981). Originally, it was our intention to solicit independent coders to classify all this data (i.e., well over 1,000 messages in total). After locating/reading the literature on developing coding schemes generally (total hours: 100), unitizing the data for coding (total hours: 40), developing and refining the coding system (we worked through 4 separate systems and tested and trained on each, resulting in approximately 200 hours per person), we weren't particularly anxious to spend another 136 hours (accumulated across 3 coders) coding the data. Our experiences illustrated to us that "no way" could anybody be trained to code these data better than what we had learned to do in the process of creating the coding scheme.

We based our conclusion on 4 important issues. First, we were not at all convinced that others could really be "sold" on the importance of making careful, systematic judgments. Without this commitment, raters may be more likely to rush through the task, making cursory, uncritical and superficial guesses in their classifications (Thorndike & Hagen, 1969). Second, competent coders should be thoroughly familiar with the conceptual and operational definitions of the coding categories (Tucker, Weaver, & Berryman-Fink, 1981). Because we spent so many hours designing, defining and revising each and every element of the system to ensure a uniform and complete understanding among us all, we felt more comfortable with our own coding of the data than with others we might train.

Third, coders who share similar experiences and backgrounds

with the respondents appear to more accurately classify subjects' behavior/ messages (Marston & Borchardt, 1979; Thorndike & Hagen, 1969). Specifically, raters who are also teachers would be more likely to correctly label or appropriately identify the data than those who may have had limited exposure to this type of classroom data. The fact that we are teachers, coupled with our experience and familiarity with the compliance-gaining research in the instructional arena generally, fulfilled this criterion. And fourth, we were particularly sensitive to the time/cost factors involved in "employing" others to code the data. Even though this final issue emphasizes the pragmatic, we were grateful (eventually!) for the opportunity to code the data ourselves. Without experiencing the data directly (hour after hour, day after day), we would have lost much of the interpretative potential we acquired over time. Transforming qualitative data to numbers only provides the basis for numerical analysis which in turn, must be explained within the framework of the original qualitative responses. Consequently, the "numbers" meant a great deal more to us than if we had relied vicariously on the judgements of others.

Conclusion

Heuristically, these "notes" are intended as a set of guidelines which investigators should consider when developing their own concrete coding systems. Unlike other methodological articles and texts which gloss over the harsh realities of the actual coding process, we have attempted to alert investigators to those challenges and difficulties which permeate a project of this

magnitude. We certainly wish we had been provided with these notes prior to embarking on our coding activities. Interestingly, even when we looked in our own profession's journals, no such direction is available. An examination of the research employing coding schemes within our discipline reveals little of the procedures and concerns addressed in this paper. This report then, should serve as the initial roadmap for future explorations and provide a generalized typology of the pitfalls which may lie ahead for interested instructional communication researchers.

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